## AMENDMENTS TO THE CLAIMS

This listing of the claims replaces all prior listings and versions:

1 to 35. (canceled).

36. (currently amended): A method of assessing the change of cartilage in a joint of a living mammal over time, the method comprising the steps of

(a) determining the thickness, width, area or volume of a region of cartilage at an initial time $T_1$;

(b) determining the thickness, width, area or volume of the region of cartilage at a later time $T_2$;

(c) determining the change in the thickness, width, area or volume of the cartilage between the initial and later times;

(d) electronically transferring an electronically generated image comprising the cartilage from a transferring device to a receiving device located distant from the transferring device;

(e) receiving the transferred image at the distant location; and

(f) converting the transferred image to a degeneration pattern.

37. (previously presented): The method of claim 36, wherein the joint is from a human and wherein the method further comprises the step of generating a movement pattern for the joint of the human from a database accessible to the distant location, wherein the database includes a collection of movement patterns of human joints, which patterns are organized and are accessed by reference to characteristics such as type of joint, gender, age, height, weight, bone size, type of movement, and distance of movement.

38. (previously presented): The method of claim 37, wherein the movement pattern is of a human walking, running, stair-climbing, stepping onto/off of a platform, or jumping.

39. (previously presented): The method of claim 37, wherein the movement pattern and the electronically generated image are merged to show how the movement pattern interacts with

the electronically generated image.

40. (previously presented): The method of claim 36, wherein the volume of the cartilage loss is assessed by

determining the thickness, $D_N$, of the normal cartilage near the cartilage defect;

obtaining the thickness of the cartilage defect, $D_D$, of the region;

subtracting $D_D$ from $D_N$ to give the thickness of the cartilage loss, $D_L$;

determining the area of the cartilage defect $A_D$; and

multiplying the $D_L$ value times the area of the cartilage defect, $A_D$, to give the volume of cartilage loss.

41. (previously presented): The method of claim 40, wherein the region of the cartilage defect includes a portion of the cartilage contiguous to the defect.

C 1

42. (previously presented): The method of claim 36, wherein the joint is a knee joint.

43. (previously presented): The method of claim 36, wherein the mammal is a human.

44. (canceled).

45. (previously presented): A method of assessing the change of cartilage in a joint of a mammal over time, the method comprising the steps of:

(a) determining the thickness, width, area or volume of a region of cartilage at an initial time $T_1$ using a magnetic resonance imaging (MRI) technique;

(b) determining thickness, width, area or volume of the region of cartilage at a later time $T_2$ using a magnetic resonance imaging (MRI) technique; and

(c) determining the change in the thickness, width, area or volume of the cartilage between the initial and later times, wherein the MRI technique includes placing external markers on the skin overlaying the bone on either side of the joint.

46. (previously presented): The method of claim 45, wherein the MRI technique first obtains a series of two-dimensional views of the joint, which are then mathematically integrated to give a three-dimensional image.

47. (previously presented): The method of claim 45, wherein the MRI technique employs a gradient echo, spin echo, fast-spin echo, driven equilibrium fournier transform, spoiled gradient echo or steady state free precession technique.

48. (canceled).

49. (previously presented): A method of making a three-dimensional map of joint cartilage in a mammal, wherein the joint comprises cartilage and associated bones on either side of the joint, which method comprises

measuring a detectable biochemical component;

determining the relative amounts of the biochemical component;

mapping the amounts of the biochemical component in three dimensions; and

determining the areas of abnormal joint cartilage by identifying the areas having altered amounts of the biochemical component present, thereby making a three-dimensional map of joint cartilage.

50. (canceled).

51. (previously presented): The method of claim 49, wherein the joint is a knee joint.

52. (previously presented): The method of claim 51, wherein the mammal is a human.

53. (canceled).

54. (previously presented): The method of claim 49, wherein the biochemical components are glycosaminoglycan, sodium, water or hyaluronic acid and further wherein measuring of the biochemical component is done using a magnetic resonance imaging (MRI) technique that includes placing external markers on the skin overlaying the bone on either side of the joint.

55. (previously presented): The method of claim 54, wherein the MRI technique first obtains a series of two-dimensional views of the joint, which are then mathematically integrated to give a three-dimensional image.

56. (previously presented): The method of claim 55, wherein the MRI technique employs a gradient echo, spin echo, fast-spin echo, driven equilibrium Fourier transform, spoiled gradient echo or steady state free precession technique.

C1

57. (previously presented): A method of estimating the change of cartilage in a joint, wherein the joint comprises articular cartilage, the method comprising the steps of

(a) defining a 3D object coordinate system of the joint at an initial time, $T_1$;

(b) identifying a region of a cartilage defect or diseased cartilage within the 3D object coordinate system;

(c) defining a volume of interest around the region of the cartilage defect or diseased cartilage whereby the volume of interest is equal to or larger than the region of cartilage defect or diseased cartilage, but does not encompass the entire articular cartilage;

(d) defining the 3D object coordinate system of the joint at a second timepoint, $T_2$;

(e) placing the identically-sized volume of interest into the 3D object coordinate system at timepoint $T_2$ using the object coordinates of the volume of interest at timepoint $T_1$; and

(f) measuring any differences in cartilage within the volume of interest between timepoints $T_1$ and $T_2$.

58. (previously presented): The method of claim 57, wherein the joint is a knee joint.

59. (previously presented): The method of claim 57, wherein the mammal is a human.

60. (previously presented): The method of claim 57, wherein measuring the differences shows a loss of the cartilage between $T_1$ and $T_2$.

61. (previously presented): The method of claim 36, wherein steps (a) and (b) comprise determining thickness and step (c) comprises determining the change in thickness.

62. (previously presented): The method of claim 36, wherein steps (a) and (b) comprise determining width and step (c) comprises determining the change in width.

63. (previously presented): The method of claim 36, wherein steps (a) and (b) comprise determining area and step (c) comprises determining the change in area.

C1

64. (previously presented): The method of claim 36, wherein steps (a) and (b) comprise determining volume and step (c) comprises determining the change in volume.

65. (previously presented): The method of claim 45, wherein steps (a) and (b) comprise determining thickness and step (c) comprises determining the change in thickness.

66. (previously presented): The method of claim 45, wherein steps (a) and (b) comprise determining width and step (c) comprises determining the change in width.

67. (previously presented): The method of claim 45, wherein steps (a) and (b) comprise determining area and step (c) comprises determining the change in area.

68. (previously presented): The method of claim 45, wherein steps (a) and (b) comprise determining volume and step (c) comprises determining the change in volume.